PROPOSED ACTION

Groundhog Gulch Project Plan
for
Oil and Gas Exploration and Development
Mesa County, Colorado

DOI-BLM-CO-N040-2015-0062-EA

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INTRODUCTION

Piceance Energy, LLC (PE) is proposing a 2- to 3-year development program for natural gas underlying BLM and private lands approximately 9 miles east of Collbran, Mesa County, Colorado. This proposal, referred to as the Groundhog Gulch Project (GHGP), arises from the successful demonstration of the potential of the area to contain economically viable reserves of natural gas from wells previously drilled and completed by PE on Fee lands immediately east and west of the proposed project area. The project area includes portions of Sections 28 and 29, Township 9 South, Range 93 West, Sixth Principal Meridian (Table 1).

This proposal consists of constructing, drilling, completing, and operating up to 53 Federal wells and 26 Private wells from four new private (Fee) locations on surface owned exclusively by PE. Ancillary facilities connected to the project include access roads, natural gas and produced water lines, and a variety of surface production equipment. All ancillary facilities are also on lands exclusively owned by PE. Included in this proposal is a range of mitigation measures designed to minimize or eliminate impacts to surface and subsurface resources.

Although the project lies within the jurisdictional boundaries of the BLM Grand Junction Field Office (GJFO), it would be administered by the BLM Colorado River Field Office (CRVFO) in Silt, Colorado.

PURPOSE AND NEED FOR ACTION

The purpose of this proposal is to develop natural gas resources on Federal leases COC67684, consistent with existing federal lease rights. The action is needed to increase the development of natural gas resources for commercial marketing to the public. Instead of structuring the development of the lease as a series of individual actions, the current BLM policy, specifies the use of multi-well development plan proposals to manage Federal lease development more effectively.

PROPOSED ACTION

This Proposed Action describes the GHGP oil and gas development strategy by PE given current market conditions and company constraints. If fully developed, the project would result in 53 Federal wells and 26 Private wells drilled at four new surface locations (Figure A1). PE expects to begin the drilling program for Federal wells in spring 2015, with a single rig operating year-round. Some Fee wells have already been drilled. Time for full development is estimated at 1 to 2 years.

The total number of wells drilled and wells drilled per year would depend largely on factors out of PE's control, such as engineering technology, economic factors (e.g., the price of natural gas and the cost of services), availability of commodity markets, and lease stipulations and notices.

Associated with this development would be the construction of up to 1.27 miles of new access road, and up to 1.34 miles of pipelines (see Figure A1).

The proposed project area encompasses approximately 1280 acres of which 640 acres are characterized by typical split estate (i.e., private surface and Federal mineral estate), and 640 acres are Fee lands(Exhibit A). Of the 640 acres of Fee lands, 430 acres are being developed from existing Fee/Fee locations (Piceance 28-11 and Gunderson 29-09 Pads) owned by PE.

Each major element of the proposal is described below under the headings: **Development** (Construction/Drilling/Completion), **Production** (Operation and Maintenance), **Abandonment and Reclamation**, and **Road Maintenance.**

Table 1. Proposed Well Pads, Roads, and Pipelines							
Well Pad	***Lease***		***Legal Description T9S, R 93W***	***Surface***	***Short-term Acres***	***Long-term Acres***	***Remarks***
Piceance 28-05	Fee COC64786		SWNW Sec. 28	Private	5.87	2.00	
Piceance 28-10	COC64786		NWSE Sec 28	Private	7.34	2.23	
Piceance 29-07	Fee COC64786		SWNE Sec 29	Private	8.74	2.25	
Piceance 29-11	Fee COC64786		NESW Sec 29	Private	4.67*	2.23*	* Estimate
Subtotal				**Private**	**26.62**	**8.71**	
Road Access	***Length***				***50-foot Width***	***30-foot Width***	
	Miles	***Feet***					
Piceance 28-05	0.12	656	Figure A1	Private	0.75	0.45	
Piceance 28-10	0.22	1141	Figure A1	Private	1.31	0.79	
Piceance 29-07	0.18	974	Figure A1	Private	1.11	0.67	
Piceance 29-11	0.78*	4,002*	Figure A1	Private	4.59*	2.75*	* Estimate
Subtotal	**1.27**	**6,755**		**Private**	**7.76**	**4.66**	
Pipelines	***Length***						
	Miles	***Feet***					
Piceance 28-05	0.10	472	Figure A1	Private	0.54*	N/A**	* Estimate ** No long-term disturbance; Short-term disturbance would be fully reclaimed.
Piceance 28-10	0.32	1,667	Figure A1	Private	1.91*	N/A**	
Piceance 29-07	0.45	2,390	Figure A1	Private	2.74*	N/A**	
Piceance 29-11	0.49	2,567	Figure A1	Private	2.94*	N/A**	
Subtotal	**1.34**	**7,096**			**8.13***		
Note: Pipeline buried adjacent to roads. Disturbance included in Road Totals							
GRAND TOTAL				**Private**	**42.51**	**13.37**	**69% Short-term**
Note: Road disturbance based on an average of 50 feet from the toe of fill to top of cut. Long -term disturbance based on 30 feet (16 to 24 feet of running surface and 4 feet for borrow ditches).							

Development

During the course of development, numerous construction activities would be needed. All of these activities could occur simultaneously. The following is a description of construction methods proposed for well pads, access roads, and gas gathering and produced water pipelines.

Construction

Proposed Well Pads

The locations of the four new Fee well pads reflect the results of onsite exams conducted by PE, BLM, and PE subcontractors, to assess proposed pad and pit layout, cuts and fills topsoil stockpiling, erosion control, and reclamation potential of each surface pad. The primary purpose of onsite inspections was to

assess potential resource impacts associated with their construction. In some cases, multiple revisions to the proposed pad and pit layout were made to minimize potential impacts. Revisions to the proposed pad layouts and orientation as well as access were adjusted based on BLM and PE subcontractor recommendations. Since PE owns the surface, no Surface Use and Access Agreement was drafted.

The proposed well pads would be constructed from the native soil and rock materials present using a bulldozer, grader, and excavator. The pads would be constructed by clearing all vegetation, stripping and stockpiling topsoil, and leveling the pad area using cut-and-fill techniques. Any other woody vegetation would be placed at the toe of the fill slopes for help in managing stormwater. Cut slopes, associated with pad construction, would be left rough to provide a seed catchment surface, and may require "bench cutting" when heights exceed 15 feet if the soils warrant it. The tops of the cut banks and pad corners may be rounded to improve their appearance and reduce the volume of cut and fill.

Initially, the size of the newly constructed pads would range from about 5.9 to 8.9 acres. After all wells are drilled, completed and production facilities are installed at each pad, interim reclamation activities would begin. Cuts and fills would be recontoured to 1.5-3:1 slopes and revegetated to blend in with adjacent natural slopes as much as possible and seeded to reestablish vegetative cover. These interim reclamation techniques would result in approximately 70 % reduction in surface disturbance that would remain over the long-term life of the project (i.e., 20 to 30 years). **Table I** presents the size of the pads during drilling and completion activities (short-term disturbance) and after interim reclamation (long-term disturbance).

De-watering systems would be used, and drill cuttings would be stacked on location during the drilling operations. Once drilling is completed, the cuttings would be allowed to dry and then tested to COGCC 910 standards. Once the testing results satisfy COGCC staff, PE would then manage the cuttings until all the wells are completed and the location is reclaimed to the production and operations footprint. At this time, the cuttings would be incorporated into the cut slope and covered with minimum of 3 feet of soil as the slopes are recontoured. PE would implement and complete temporary (pre-interim) reclamation or standard interim reclamation practices as identified in the "13 Point Surface Use Plan of Operations" or submit proposed best management practices approved by the governing regulatory agency (COGCC) that would be implemented if the pad needs to remain "open" to control stormwater drainage and weeds, and provide for wildlife protection measures, dust abatement plan and visual resource management.

PE intends to drill and complete all wells on each pad and reclaim the pads back to production and operation as soon as possible. As this time, PE does not intend to drill the pads in stages (drill and move off and return later).

PE has no plans for any type of cuttings or drilling pits. Because this is open range, there also are no plans for additional fencing other than that already in place to separate any private grazing allotments. The sides of the well pads would be bermed to prevent stormwater from flowing off the pad and into nearby drainages. Storm water would be directed to an opening in the berm that leads off the pad to a sediment trap. The channel from the opening to the sediment trap, and the overflow from the trap would be lined with riprap to dissipate energy and control erosion. PE's stormwater management efforts may include additional engineering measures as the installation of culverts to divert water flow away from surface locations as needed.

Proposed Access Roads

To access the proposed project area, travel east from the town of Collbran on CR 330 approximately 9.7 miles to the Ground hog Gulch access road. Turn right onto the road and travel ~1.8 miles to the project

area. Approximately the first 1.8 miles of the access road crosses property owned by Gunderson Ranch Partnership, LLP for which PE has a Surface Use Agreement and Easement in place dated May 14, 2014.

Within the project area, the road network would be extended from existing roads to provide access to the proposed pad locations (see Figure A1). The extension of the road network would involve construction of approximately 1.27 miles of new road.

Roads would be designed and maintained to an appropriate standard no higher than necessary to accommodate their intended functions. PE attempts to follow those standards as described in the *Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development* (BLM and USFS 2007) and BLM Handbook 9113- *Roads Manual* in all of PE's operations.

Running surface would be all weather type with an aggregate surface and width could vary from 16 to 24 feet throughout the project area with safety, site distance, grade, topography, anticipated traffic flow, and visual resource management concerns being factors in width determination.

Road construction/reconstruction would include clearing and grubbing of brush and trees, windrowing of topsoil, construction of reinforced rolling dips and grade dips where feasible, installation of culverts in ditched sections and side drainages to provide ditch relief and sediment control, placement of slash and topsoil on cut and fill slopes, placement of erosion control matting on cut and fill slopes if needed, seeding of all disturbed areas outside of the travelway, and installation of cattle guards and road closure gates with proper signage where needed.

Revegetation of road ditches and cut and fill slopes would help stabilize exposed soil and reduce sediment loss, reduce the growth of noxious weeds, reduce maintenance costs, maintain scenic quality and forage, and protect habitat. To ensure successful growth of plants and forbs, topsoil would be stripped and stockpiled during road construction and spread to the greatest degree practical on cut slopes, fill slopes, and borrow ditches prior to seeding.

The road grade would be 10% or less, wherever possible. The 10% grade would be exceeded only where the physical terrain or unusual circumstances require it. Minimum horizontal curve radii would be 100 feet. Where terrain does not allow a 100-foot curve radius, the curve would be widened. New road construction would result in 7.76 acres of short-term ground disturbance. Following interim reclamation, the long-term disturbance for the access roads within the project area would be approximately 4.66 acres. Road maintenance would be performed as needed to ensure safe travel and manage stormwater.

Proposed Gas Gathering and Water Pipelines

PE's standard policy is to install the gathering lines in the disturbed area necessary to construct the access road. Construction would be performed within this area of disturbance. However, due to the topography, and the difficulty of some of the road construction, some of the pipelines would not follow the access roads and would run across country to tie-in points at lower elevations. The short-term disturbance area for the pipelines would be 50 feet.

The pipeline trench would be excavated mechanically primarily in the uphill or cut side corridor with an excavator (trackhoe) and would be approximately 3 feet wide and at least 4 to 5 feet deep. Gas pipeline segments would be welded together and lowered in the trench. The waterline would then be placed into the ditch and separated from the gas line by sandbags or other means. Both lines would be covered with excavated material, and then each pipeline would be pressure tested with fresh water and/or nitrogen gas to locate any leaks. Fresh water or nitrogen used for testing would be obtained offsite and transported to

the testing location by truck. After testing, the water would be disposed of at an existing offsite evaporation pond facility, or used by PE for drilling or completion operations. Nitrogen would be vented to the atmosphere if used instead of water.

Because some of the infrastructure for the gathering and waterline is in place, approximately 1.45 miles of additional pipe would be needed to complete the gathering system.

Mitigation Common to All Construction Operations

As part of the GHGP, PE is submitting a Master Application for Permit to Drill (MAPD) that includes a 10-point drilling plan and 13-point surface plan that incorporates the drilling and mitigation measures that are common to all the Federal wells and to a certain extent some of the split estate and private well pads within the GHGP area. Mitigation for specific wells not incorporated by PE in the MAPD would be attached as Conditions of Approval for APDs filed with the Colorado River Valley Field Office once the APDs are approved.

Pad construction/reconstruction would include clearing and grubbing of brush and trees, windrowing of topsoil, placement of slash and topsoil on cut-and-fill slopes, and placement of erosion control matting on cut and fill slopes if needed. The sides of the well pads would be bermed to prevent stormwater from flowing off the pad and into nearby drainages. Storm water would be directed to an opening in the berm that leads off the pad to a sediment trap. The channel from the opening to the sediment trap, and the overflow from the trap would be lined with riprap to dissipate energy and control erosion. PE's stormwater management efforts may include additional engineering measures as the installation of culverts to divert water flow away from surface locations as needed.

On pads where boulder fields might exist, reclamation would include the replacement of boulders in order to reconstruct the natural appearance.

Drilling and Completion

Up to 53 Federal and 26 Fee wells would be drilled as part of the proposed plan action. **Table 2** lists the surface location of the wells as well as the well bottom hole locations. PE's drilling operations would be conducted in compliance with all applicable State and Federal rules and regulations, and Notices to Lessees (NTL's). Drilling rigs in the GHGP area would be targeting natural gas producing horizons in the Mesa Verde and Iles formations at depths of 7,500 to 9,000 feet. Wells would require approximately 4 to 6 days to drill and 30 days to complete. The multi-well pads would be occupied for a more extended period, depending on the number of wells drilled. Production results for wells drilled during the first year would be used to plan and design the drilling program for subsequent years.

PE intends to drill and complete all wells on each pad. Development would be highly sensitive to price of gas and cost of services. The BLM would be notified of scheduling changes in a timely manner. If all Federal wells on the pad are not drilled concurrently, PE would delay interim reclamation until that time the rig drilling resumes operations. During this time the pad would be monitored and managed for noxious and invasive weeds and for stormwater.

After 1 year from spudding, the initial well, or 1year after spudding any successive well(s), PE would implement and complete temporary (i.e., pre-interim) reclamation or standard interim reclamation practices as required on the "open" pad to control stormwater drainage and weeds, and provide for wildlife protection measures, dust abatement plan and visual resource management. Because of geologic and market uncertainties, PE may drill fewer wells than those described in Proposed Action.

Table 2. List of Wells and Bottom Hole Locations					
Pad No.	***Surface Location Twn. 9S, Rng. 93W (Private Surface)***	***Sequence***	***Well No.***	***Lease***	***BHL (qtrqtr)* Twn. 9S, Rng. 93W***
Piceance 28-05	SWNW Sec. 28	1	Piceance 28-01W	Fee	NWNW Sec. 28
		2	Piceance 28-02W		
		3	Piceance 28-03W		
		4	Piceance 28-04W		
		5	Piceance 28-05W		
		6	Piceance 28-06W		SWNW Sec. 28
		7	Piceance 28-07W		
		8	Piceance 28-08W		
		9	Piceance 28-09W		
		10	Piceance 28-10W		
		11	Piceance 28-06M		SENW Sec. 28
		12	Piceance 28-07M		
		13	Piceance 28-08M		
		14	Piceance 28-09M		
		15	Piceance 28-10M		
		16	Piceance Fed 28-01M	COC64786	NENW Sec. 28
		17	Piceance Fed 28-02M		
		18	Piceance Fed 28-03M		
		19	Piceance Fed 28-04M		
		20	Piceance Fed 28-05M		
Piceance 28-10	NESW Sec. 28	1	Piceance Fed 28-05E	COC64786	NENE Sec. 28
		2	Piceance Fed 28-06E		SENE Sec. 28
		3	Piceance Fed 28-07E		
		4	Piceance Fed 28-08E		
		5	Piceance Fed 28-09E		
		6	Piceance Fed 28-10E		
		7	Piceance Fed 28-11E		
		8	Piceance Fed 28-12E		NESE Sec. 28
		9	Piceance Fed 28-13E		
		10	Piceance Fed 28-14E		
		11	Piceance Fed 28-15E		
		12	Piceance Fed 28-16E		
		13	Piceance Fed 28-17E		SESE Sec. 28
		14	Piceance Fed 28-18E		
		15	Piceance Fed 28-19E		
		16	Piceance Fed 28-20E		
		17	Piceance Fed 28-21E		
Piceance 29-07	SWNE Sec. 29	1	Piceance 29-01E	Fee	NENE Sec. 29
		2	Piceance 29-02E		
		3	Piceance 29-03E		
		4	Piceance 29-01M		NWNE Sec. 29
		5	Piceance 29-02M		

Table 2. List of Wells and Bottom Hole Locations					
Pad No.	***Surface Location Twn. 9S, Rng. 93W (Private Surface)***	***Sequence***	***Well No.***	***Lease***	***BHL (qtrqtr)* Twn. 9S, Rng. 93W***
Piceance 29-07	SWNE Sec. 29	6	Piceance 29-03M		NWNE Sec. 29
		7	Piceance 29-04M		
		8	Piceance 29-05M		
		9	Piceance 29-06M		SWNE Sec. 29
		10	Piceance 29-07M		
		11	Piceance Fed 29-01W	COC64786	NWNW Sec. 29
		12	Piceance Fed 29-02W		
		13	Piceance Fed 29-03W		
		14	Piceance Fed 29-04W		
		15	Piceance Fed 29-05W		
		16	Piceance Fed 29-06W		SWNW Sec. 29
		17	Piceance Fed 29-07W		
		18	Piceance Fed 29-08W		
		19	Piceance Fed 29-09W		
		20	Piceance Fed 29-10W		
		21	Piceance Fed 29-11W		NWSW Sec. 29
Piceance 29-11	NESW Sec. 29	1	Piceance Fed 29-17E	COC64786	SENE Sec. 29
		2	Piceance Fed 29-18E		
		3	Piceance Fed 29-19E		
		4	Piceance Fed 29-20E		
		5	Piceance Fed 29-21E		
		6	Piceance 21-16M	Fee	NESW Sec. 29
		7	Piceance Fed 29-17M	COC64786	SESW Sec. 29
		8	Piceance Fed 29-18M		
		9	Piceance Fed 29-19M		
		10	Piceance Fed 29-20M		
		11	Piceance Fed 29-21M		
		12	Piceance Fed 29-12W		NWSW Sec. 29
		13	Piceance Fed 29-13W		
		14	Piceance Fed 29-14W		
		15	Piceance Fed 29-15W		
		16	Piceance Fed 29-16W		
		17	Piceance Fed 29-17W		SWSW Sec. 29
		18	Piceance Fed 29-18W		
		19	Piceance Fed 29-19W		
		20	Piceance Fed 29-20W		
		21	Piceance Fed 29-21W		

Prior to drilling below the surface casing, well control equipment (Blowout Preventer and Choke Manifold) would be installed on the surface casing and both the well control equipment and surface casing would be tested to ensure adequate well control. The well control equipment would meet the minimum standards of Onshore Oil and Gas Order Number 2 (Drilling Operations), and for Federal wells,

the BLM would be notified in advance of all pressure tests in order to be present and witness the tests, if so desired. Charts of the test are kept on location and are available to the BLM for inspection at any time.

PE would use a small truck mounted drilling rig to drill the conductor pipe and rat holes. Once the conductor pipe is set and cemented in place to the surface, a conventional drilling rig would be moved in and rigged up to spud (begin drilling) the surface hole and production holes to total depth. A downhole motor is used to directionally drill the well and to increase penetration rate. The motor is powered by drilling fluids that are used to drive the motor, cool the bit, and carry drill cuttings to the surface. In order to maintain borehole stability, minimize possible damage to the formation, provide adequate carrying viscosity (thickness) to carry the drill cuttings out of the wellbore, and reduce downhole fluid losses, various chemicals and additives may need to be added to the mud system. Any additives to the mud system would conform to Subtitle C of the Resource Conservation and Recovery Act (RCRA) of 1976 as amended 1996. Material Safety and Data Sheets (MSDS) would be readily available at all times.

For the directional wells, an S-shaped directional design would be used to reach the targeted well locations. In general, a target radius of 50 feet would be used. Specific directional plans for each well would be included with the APDs. Downhole operations would be done with directional tools to facilitate proper direction and path of the well.

Drill cuttings from the wellbore (mainly shale, sand, and miscellaneous rock minerals) would be buried on location cutting management areas, are planned for each new pad location in the GHGP.

After drilling the hole to its total depth, logging tools would be run into the well to evaluate the potential hydrocarbon resource. If the evaluation indicates adequate hydrocarbon resources are present and recoverable, steel production casing would be run and cemented in place in accordance with the well design, as approved by the BLM and any applicable Conditions of Approval (COAs). The proposed casing and cementing program would be designed to protect and/or isolate all usable water zones, potentially productive zones, lost circulation zones, abnormally pressured zones, and any prospectively valuable deposits of minerals. BLM approval is necessary prior to the use of any isolating medium other than cement.

After production casing has been cemented in place, completion equipment is moved onto the location. Well completion consists of running a Cement Bond log to evaluate the cement integrity and to correlate the cased hole logs to the open hole logs, perforating the casing across the hydrocarbon producing zones, and stimulating the formation to enhance the production of oil and gas. The typical method used for stimulation consists of hydraulic fracture treatment of the reservoir, in which sand with non-toxic fluids is pumped into the producing formation with sufficient hydraulic pressure to fracture the rock formation. The sand serves as a proppant to keep the created fracture open, thereby allowing reservoir fluids to move more efficiently into the wellbore.

Production

Surface Facilities

Surface facilities at each well pad location would consist of wellheads, separation units, gas metering units and above ground condensate and produced water tanks with approximately 300- to 400-barrel (bbl) capacities each, or when needed for visual mitigation, low profile 250-bbl steel tanks would be installed. Multi-well locations would share production equipment, whenever feasible, to minimize surface occupancy and disturbance. All production equipment located on or associated within the development area would be painted to match the surrounding terrain and located to reasonably minimize visual impact.

Colors recommended by the BLM would be use for these facilities, including containment barriers, at each site. The production equipment would be fenced to prevent contact with wildlife and livestock. Telemetry equipment would be used to remotely monitor well conditions. The use of telemetry would minimize traffic to and from the well locations. Automated tank gauging would also be employed to minimize the risk of spills.

Tank batteries would be placed within secondary containment to prevent the offsite migration of accidentally spilled condensate or produced water. Secondary containment would consist of corrugated steel containment rings. Construction of the containment rings surrounding the tank batteries would be conducted to prevent lateral movement of fluids through an impermeable barrier attached to the rings and laid under the tanks. Secondary containment would be sized to contain a minimum of 110 percent of the storage capacity of the largest tank within the barrier. All loading lines would be placed inside the containment barrier.

Produced Water Management

- Completion Phase: All "frac" flowback water would be contained in temporary tanks during completion operations and recycled for re-use or trucked offsite to approved commercial disposal facilities.

- Production Phase: Permanent 400-bbl steel tanks would be installed on the well pad or offsite facilities to capture produced water. These tanks would be onsite for the life of the wells. Produced water captured in the storage tanks would be transferred to centralized tank batteries at PE pads by one of two methods. The primary method is by buried pipelines utilizing gravity flow. The secondary method is by trucking when the pipeline system is not operational. Once collected at a central site, the produced water would be pumped via waterlines to the Harrison Creek Water Treatment Facility (HCWTF) owned and operated by PE in the NENE Sec. 22, T9S R83W where it would be treated and recycled for use in drilling and completion operations. The facility is anticipated to be on-line in the Fall of 2015.

Condensate would be captured at the well site in steel storage tank(s) and transported to market by tanker trucks.

Site Specifics

During the production phase, produced water would be transferred via waterline or truck to a water transfer station. From there the water would be pumped to the HCWTF for treatment and recycling. Any water they may need be disposed of a commercial disposal facility would be trucked too one of three facilities. Currently, the two anticipated sites for disposal is the Danish Flats disposal facility in Eastern Utah, the Harley Dome facility in Eastern Utah, or the Greenleaf Environmental Services facility in De Beque, Colorado.

Interim Reclamation

After completion activities, PE would reduce the size of the well pads to the minimum surface area needed for production facilities and future workovers, while providing for reshaping and stabilization of cut and fill slopes. In brief, interim reclamation would be accomplished by grading, leveling, and seeding with a seed mix appropriate for the area. Interim reclamation would reduce the disturbed area at each pad to approximately 1 to 2.5 acres after full development.

The following is a summary of interim reclamation activities PE would implement after all wells have been completed on a location:

- The well location and surrounding areas(s) would be cleared of all debris, materials, and trash not required for production. Other waste and spoil materials would be disposed of at a local landfill.
- All cellars, rat holes and other boreholes at drilling locations unnecessary for further lease operations, would be back-filled to conform to surrounding terrain after the drilling rig is released.
- Areas not necessary for production and future work-overs would be reshaped to resemble the original landscape contour. Stockpiled topsoil would be redistributed and disked on the area to be reclaimed and seeded.

Interim reclamation of that portion of the location and access roads not needed for production facilities/operations would be reclaimed as soon as possible after the date of the last well completion, weather permitting. Dry/non-producing well locations would be plugged, abandoned and reclaimed within 90 days of well completion, weather permitting.

Some locations would require special reclamation practices. These practices could include hydro-mulching, straw mat application on steeper slopes, fertilizing, seedbed preparation, contour furrowing, watering, terracing, water barring, and the replacement of topsoil. As some of the pads are in existing or former irrigated pastures, they would be reclaimed and seeded with pasture seed mixes. Pads outside pasture boundaries would be reseeded with seed mixes appropriate for the area.

Workovers / Recompletions

Periodically, the workover or recompletion of a well may be required to ensure that efficient production is maintained. Workovers can include repairs to the well bore equipment (casing, tubing, rods, or pump) the wellhead, or the production facilities. These repairs would usually be completed during daylight hours. The frequency of this type of work cannot be accurately projected because workovers vary from well to well. In the case of multi-well pads, space for equipment would usually be limited to the "in-use" (i.e., disturbed) area of the surface location, although it is possible that interim reclamation could be delayed by work-over operations. In the case of a well recompletion, a water completion pit may have to be constructed.

Final Abandonment and Reclamation

Well and Pipeline Plugging and Abandonment

Upon abandonment, each well would be plugged with cement and its related surface equipment would be removed. Subsurface pipelines would be plugged at specific intervals and site contouring would be accomplished using appropriate heavy equipment. All disturbed surface soil would be reseeded with native vegetation. The seed mix used would conform to the typical vegetation surrounding the specific well site and approved by the landowner.

A Sundry Notice would be submitted by PE to the BLM (for Fed wells) and COGCC describing the technical or environmental aspects of final plugging and abandonment for the Federal wells. This notice would describe final reclamation procedures and any mitigation measures associated with the final reclamation performed by the operator. The BLM and Colorado Oil & Gas Conservation Commission (COGCC) standards for plugging would be followed. A configuration diagram, a summary of plugging

procedures, and a job summary with techniques used to plug the well bore (e.g., cementation) would be included in the Sundry Notice.

Final Reclamation

All surface disturbances would be recontoured and revegetated according to an approved reclamation plan. Consequently, one of the goals in this proposal is to accomplish as much reclamation on each well pad during the life of the well as possible, even on those pads with a large final reclamation or "in use" area. Un-reclaimed areas or reclaimed areas that do not meet the objective of 3 to 4 years of sustained reclamation (known as "operator complete") would undergo the reclamation retreatment measures described in the 13-Point Surface Use Plan submitted as part of the GHGP and referenced with each Application for Permit to Drill (APD). PE would also meet the BLM and State bonding requirements. Additional bonding would be provided for sites with extremely difficult reclamation conditions, if repeated reclamation attempts have been unsuccessful, or final reclamation cannot be completed with standard reclamation measures.

PE or its successors would restore the well locations and access roads to approximately their original contours. During reclamation of these sites, fill material would be pushed into cuts and up over the back slope. No depressions would be left that would trap water or form ponds. Upon completion of backfilling, leveling and recontouring, the stockpiled topsoil would be spread evenly over the areas to be reclaimed. All disturbed surfaces would be seeded with a seed mixture recommended by the BLM or requested by the landowner. The seedbed would then be prepared by disking and roller packing following the natural contours. Seed would be drilled on contours at a depth no greater than one-half inch (0.5 inch). In areas that cannot be drilled, seed would be broadcast at double the seeding rate and harrowed into the soil. Certified weed-free seed would be used per BLM policy. Seeding should occur within 24 hours following completion of final seedbed preparation to reduce the potential for establishment of weeds and before crusting of the soil, which can impede germination. If the seeding is unsuccessful, PE may be required to make subsequent seedings.

Reclamation would be considered successful when the objectives described in the GSRA Reclamation Policy are achieved or when the landowner makes the determination the reclamation is adequate. Revegetation would be considered successful if it meets the objectives set forth in the Conditions of Approval identified in Appendix E of the GSRA Oil & Gas Leasing & Development Draft Supplemental Environmental Impact Statement (DSEIS) (BLM 1998). To summarize the objectives in Appendix E of the DSEIS, revegetation would be considered successful when the following objectives are met:

- Short-term: Establishment of desirable perennial vegetation by end of the second growing season, capable of renewing itself.
- Acceptable Establishment: Acceptable level of desirable vegetation by the end of the fifth growing season.
- Long-term Establishment: Level of revegetation approximates the original pre-disturbed condition in terms of canopy cover and species composition.

Road Maintenance

The access roads would be inspected and maintained by PE. At a minimum, routine maintenance might include such items as:

- Road surface grading and graveling
- Relief ditch, culvert and cattle guard cleaning, gate and sign maintenance

- Erosion control measures for cut and fill slopes and other disturbed areas
- Road closures in periods of excessive soil moisture to prevent rutting caused by vehicular traffic
- Road and slope stabilization measures as required until final abandonment and reclamation
- Weed control
- Dust abatement techniques and frequency would be determined by the BLM and PE.
- Stormwater maintenance

NO ACTION ALTERNATIVE

The Proposed Action involves Federal subsurface minerals that are encumbered with Federal oil and gas leases, which grant the lessee a right to explore and develop the lease. Although BLM cannot deny the right to drill and develop the leasehold, individual APDs can be denied to prevent unnecessary and undue degradation. The No Action Alternative constitutes denial of the APDs associated with the Proposed Action.

Elements of Proposed Action do not require Federal approval prior to implementation. For example, the proposed and existing pads are located on private surface, and the 26 proposed Fee wells could be developed on these pads even if the APDs associated with the Federal leases are denied.

Although the development of the Fee wells would not result from the selection of the No Action Alternative *per se*, impacts to the affected environment would occur from the development of the Fee location. These effects provide the basis for comparison to the impacts of the Proposed Action. This comparison is important because it shows what is likely to happen if the Proposed Action was not taken.

For the purposes of comparison, the No Action Alternative is associated with the drilling and development of 26 Fee wells on three new Fee pads, but the development of up to 39 Fed wells(Piceance 28-10 wells excluded) from the three new Fee pads would not occur.

The construction of three Fee pads would involve approximately 10.1 acres of new surface disturbance over the short-term and 3.6 acres over the long-term (i.e., after interim reclamation).

Access to the area would follow the route defined for the project area as presented in the Proposed Action. However, the construction of 0.06 miles of new access road, resulting in approximately 0.22 acre of long-term surface disturbance, would be required.

Natural gas and produced water would be transported offsite through the construction of approximately 0.06 miles of new pipelines. Construction, drilling and completion, production, interim reclamation, workovers or recompletion, final abandonment, final reclamation, and weed management would generally follow the methods presented in the Proposed Action.

Under the No Action Alternative, the BLM would have no authority to institute mitigation measures designed to minimize impacts to natural and cultural resources. Any such measures would come under the jurisdiction of the Colorado Oil and Gas Conservation Commission (COGCC).